Mayor Gibson
Newark
From John Lamb
Ocean County

Groundsman Dave Voinche rakes composted sewage sludge into tourist-worn lawn surrounding Maryland's state Capitol at Annapolis. Through a cooperative agreement with USDA, the state of Maryland is using sludge compost to recondition lawns and to provide a mulch-fertilizer for trees and ornamentals around state buildings and in parks. (1175x2265-21A).

Bangor, Maine is one of the Nation's first municipalities to have its own sewage sludge composting capability. With matching Federal funds from the U.S. Environmental Protection Agency and technical assistance from USDA, the city of Bangor adapted this system to compost all of the city's weekly sewage sludge output of 50 cubic yards with waste bark from local pulp and paper mills. Using a heat sensing probe, Dr. Eliot Epstein, ARS soil scientist, demonstrates to Bangor and Federal officials how high temperatures generated by bacteria cause the decomposition of organic material in compost piles. With Dr. Epstein are Larry Prior, Environmental Protection Agency; John Flynn, Assistant City manager; John Josbph, Bangor Assistant Public Works Director; Ralph Nischow, Superintendent of Bangor's wastewater treatment plant; and Ralph Hamel, composting project foreman. (1075x2113-24).

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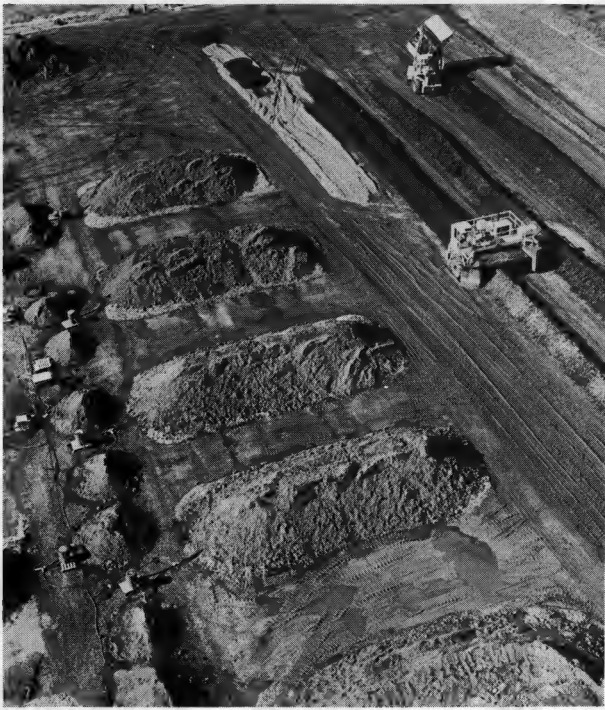
from waste to resource:

composting sewage sludge



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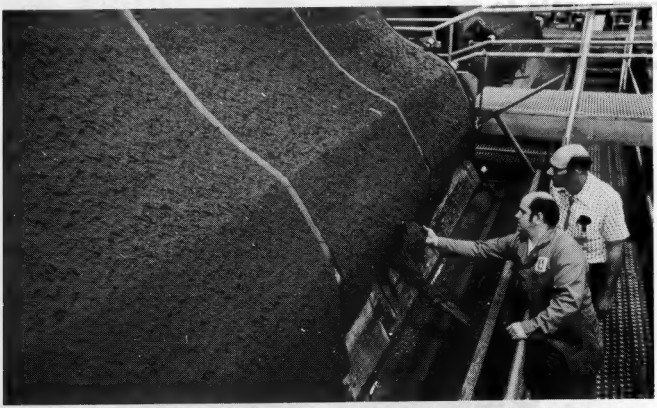
Composting turns sludge from a waste to a resource. Sewage sludge mixed with wood chips as a bulking material is composted for use as a soil conditioner, fertilizer, or mulch, on a 15 acre test site at USDA's Beltsville Research Center. Scientists there are experimenting with both raw and digested municipal sewage sludges using different chip-to-sludge ratios for composting in either windrows or aerated piles. They foresee a widespread adaptation of these techniques by municipalities throughout the United States, with sewage sludges being composted with locally available bulking materials including paper waste products, wood bark, cotton gin trash, and bagasse,or residue, from sugarcane processing. (1175x2226-13A)



Sludge destined for composting rolls off the vacuum filters at the Blue Plains wastewater treatment plant near Washington, D.C. George B. Willson of USDA's Agricultural Research Service (ARS), observes as Blue Plains shift supervisor Ed Bobick checks consistency of the sludge. Samples are taken daily and analyzed for acidity, chemical content, and bacteria in compliance with local, state, and federal laws. (1175x 2224-20A)

Laboratory technician Alan H. Hart measures water uptake of grasses and soybeans fertilized with composted sludge applied to soil at different rates. Scales measure water loss from both soils and plants. These test results will enable scientists to determine the proper amounts of composted sludge for fertilizing various crops. (0775x1123-28)

Microbiologist Nancy K. Enkiri analyzes compost samples for fecal coliform and salmonellae bacteria to insure that composting has destroyed disease-causing organisms. (0775x1125-17A).

USDA Photos
by Robert C. Black

High above Frostburg, Maryland, lush orchard grass and clover grow on what was once an unsightly, acid-leaching, and sediment-producing strip mine spoil. Composted sludge was applied to the highly acid soil at rates of 25, 50, and 100 tons per acre. Three months after seeding the spoil was fully vegetated—despite an initial pH of 2.9. Microbiologist George E. Griebel, agronomist Walter H. Armiger, and Maryland strip mine forester Frederick L. Bagley collect forage samples to be analyzed for heavy metals content. ARS and Maryland scientists are cooperating in this research project. (D775x1122-28A)

Leaf samples from soybeans and corn fertilized with composted sludge are taken by technician Timothy W. Palmer and Elizabeth N. Spear. The leaf samples will be analyzed for water, nitrogen, and heavy metals content to help scientists better understand the fertilizer value of composted sludge. (D775x1124-8).

from waste to resource:

composting sewage sludge

Each day tons of sewage sludge are dumped in rivers, lakes and the ocean. (Sludge is the solid residue which remains after much of the water is removed from sewage). Environmental and health problems associated with this age-old disposal method require a more effective solution. One of the most promising alternatives is to compost sludge. Composting costs less than incineration and is environmentally sound and esthetic. Compost improves the soil for crops, gardens and lawns.

Experiments at Beltsville, Md., by USDA's Agricultural Research Service, show that composting can be adapted for use on an urban scale. About 50 wet tons of sewage sludge (23 percent solids) are being composted daily on a 15-acre site. An operation of this scale is capable of serving a city of up to 400,000 people. Smaller or larger operations can also be carried out with the same kind of equipment.

An experimental aeration system allows for successful composting even in cold, wet weather without producing obnoxious odors. Temperatures as low as 20°F., and rainfall up to 7.5 inches, failed to disrupt the Beltsville experiments. Additional tests under more adverse conditions are being made in New England.

Heat generated during the composting process kills disease-causing organisms. Toxicity to plants from heavy metals was not detected in the compost, although more industrialized communities may have such problems.

Compost's greatest value is as a soil conditioner, increasing the water-holding capacity of the soil and decreasing compactness. It also stabilizes nitrogen in an organic form so that it is released slowly over several years. In many cases 20 to 25 dry tons of compost per acre can provide all of the nitrogen and most of the phosphorus and essential micronutrients needed for maximum crop yields without polluting ground water with nitrates.

Higher crop yields and better lawns have been produced in experiments with compost. Sod farms and nurseries may also find compost a valuable asset.

The Maryland Environmental Service; the cities of Bangor, Maine, Durham, New Hampshire, and Washington, D.C.; the U.S. Environmental Protection Agency, and the National Park Service are cooperating with the Agricultural Research Service in this research effort.